



**BILLING CODE 3510-22-P**

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**RIN 0648-XF460**

**Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to a Pile Driving Activities for Waterfront Repairs at the U.S. Coast Guard Station Monterey, Monterey, California**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice; proposed incidental harassment authorization; request for comments.

**SUMMARY:** NMFS has received a request from the U.S. Coast Guard (USCG) for authorization to take marine mammals incidental to pile driving activities for waterfront repairs at the USCG Monterey Station in Monterey, California. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to take marine mammals during the specified activities. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorization and agency responses will be summarized in the final notice of our decision.

**DATES:** Comments and information must be received no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service.

Physical comments should be sent to 1315 East-West Highway, Silver Spring, MD 20910 and electronic comments should be sent to *ITP.egger@noaa.gov*.

*Instructions:* NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period.

Comments received electronically, including all attachments, must not exceed a 25-megabyte file size. Attachments to electronic comments will be accepted in Microsoft Word or Excel or Adobe PDF file formats only. All comments received are a part of the public record and will generally be posted online at [www.nmfs.noaa.gov/pr/permits/incidental/construction.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm) without change. All personal identifying information (*e.g.*, name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

**FOR FURTHER INFORMATION CONTACT:** Stephanie Egger, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the applications and supporting documents, as well as a list of the references cited in this document, may be obtained online at [www.nmfs.noaa.gov/pr/permits/incidental/construction.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm). In case of problems accessing these documents, please call the contact listed above.

## **SUPPLEMENTARY INFORMATION:**

### **Background**

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical

region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth.

NMFS has defined “negligible impact” in 50 CFR 216.103 as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

The MMPA states that the term “take” means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.

Except with respect to certain activities not pertinent here, the MMPA defines “harassment” as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

### **National Environmental Policy Act**

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. §§ 4321 et seq.) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our

proposed action (i.e., the issuance of an incidental harassment authorization) with respect to potential impacts on the human environment. Accordingly, NMFS plans to adopt the USCG's Supplemental Environmental Assessment (SEA) entitled *Supplemental Environmental Assessment for Waterfront Repairs at U.S. Coast Guard Station Monterey, Monterey, California*, and provided our independent evaluation of the document finds that it includes adequate information analyzing the effects on the human environment of issuing the IHA. The USCG's SEA is available for public comment on our website at [www.nmfs.noaa.gov/pr/permits/incidental/construction.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm). We will review all comments submitted in response to this notice prior to concluding our NEPA process or making a final decision on the IHA request.

### **Summary of Request**

On February 10, 2017, NMFS received a request from the USCG for an IHA to take marine mammals incidental to pile driving activities for waterfront restoration, at the USCG Station Monterey in Monterey, California. USCG's request is for take of eight species of marine mammals, by Level B harassment. Neither USCG nor NMFS expect mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS previously issued an IHA to the USCG for similar work (79 FR 57052; September 24, 2014). However, no work was conducted under that IHA.

### **Description of Proposed Activity**

#### *Overview*

USCG Station Monterey occupies an upland site and adjacent waterside structures including a 1,700-foot breakwater, a wharf constructed over the breakwater, and floating docks to the east of the wharf in Monterey Harbor. The USCG intends to conduct

maintenance on the existing wharf, which is used to berth vessels that are critical to support USCG Station Monterey's mission.

The wharf is constructed of timber and steel material and is supported by 64 piles. In 1995, 47 of the original timber piles were replaced with 14-inch (in) steel pipe piles and the remaining 17 timber piles had polyvinyl chloride (PVC) pile wraps installed. The 17 remaining timber piles are bearing piles that have exceeded their service life partially due to marine bores and the harsh marine environment to which they are exposed, and they need to be replaced. The proposed project requires replacement of these 17 timber piles including removal of the existing timber deck, replacing stringers, steel pipe caps, steel support beams, and hardware in order to access the timber piles. The timber piles will be removed using vibratory pile driving and replaced with steel piles using vibratory pile driving and if needed an impact hammer.

In-water noise from pile driving activities will result in the take, by Level B harassment only, of eight species of marine mammals.

#### *Dates and Duration*

In-water construction for this application is proposed to occur between October 16, 2017 and October 15, 2018. Pile-driving activities are expected to occur for an estimated minimum of three to a maximum of eight days of the total construction time. It is assumed that driving time would be approximately 20 minutes (min) per pile for vibratory or impact pile driving. It is assumed that vibratory extraction of the existing piles would take approximately 10 min per pile. Pile driving and extraction would therefore result in an estimated of 240 min per day (4 hours (hrs)); 510 min for the total project or approximately 8.5 hrs.

### *Specified Geographic Region*

USCG Station Monterey is located at 100 Lighthouse Avenue at the southern end of Monterey Bay in Monterey Harbor, Monterey, California. The USCG Monterey Station's area of responsibility extends 50 miles offshore for approximately 120 nautical miles of coastline, from Point Año Nuevo south to the Monterey-San Luis Obispo County line, encompassing 5,000 square miles. Monterey Bay is one of the widest bays on the Pacific Coast of the U.S. and approximately 3.5 miles of coastline are within the city limits of Monterey; the Monterey Bay National Marine Sanctuary (MBNMS) encompasses the entirety of the bay and further extends northward and southward along the Pacific Coast.

### *Detailed Description of Specific Activities*

The 17 timber piles, approximately 16 to 18-in in diameter, will be removed using a vibratory extractor. Each timber pile will be replaced with a 14-in steel pipe pile installed using a vibratory hammer (the preferred method) and each pipe pile will be positioned and installed in the footprint of the extracted timber pile. Pile installation would be adjacent to a rock jetty that would provide substantial underwater shielding of sound transmission to areas north (or through the jetty) (see Figure 1-2 of the application).

Pile proofing will be conducted via impact hammer. If, due to substrate or breakwater armor, a pipe pile is unable to be driven to 30 feet below the mud line using a vibratory hammer, then an impact hammer will be used; and if the pile cannot be driven with an impact hammer, the pipe pile would be posted onto the armor stone. The steel pipe piles would not be filled with concrete.

### **Description of Marine Mammals in the Area of Specified Activities**

The marine mammal species under NMFS's jurisdiction that have the potential to occur in the proposed construction area include California sea lion (*Zalophus californianus*), Pacific harbor seal (*Phoca vitulina*), harbor porpoise (*Phocoena phocoena*), Risso's dolphin (*Grampus griseus*), bottlenose dolphin (*Tursiops truncatus*), killer whale (*Orcinus orca*), gray whale (*Megaptera novaengliae*), humpback whale (*Eschrichtius robustus*), and southern sea otters (*Enhydra lutris nereis*). The southern sea otter is managed by the U.S. Fish and Wildlife Service and not discussed further in this proposed authorization. Humpback whales are protected under the Endangered Species Act (ESA). Pertinent information for each of these species is presented in this document to provide the necessary background to understand their demographics and distribution in the area.

Sections 2 and 3 of the USCG's application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SAR; [www.nmfs.noaa.gov/pr/sars/](http://www.nmfs.noaa.gov/pr/sars/)) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS's website ([www.nmfs.noaa.gov/pr/species/mammals/](http://www.nmfs.noaa.gov/pr/species/mammals/)).

Table 1 lists all species with expected potential for occurrence in the Monterey Bay area and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2016). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum

sustainable population (as described in NMFS’s SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS’s stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS’s U.S. 2015 SARs (Carretta *et al.* 2016). All values presented in Table 1 are the most recent available at the time of publication and are available in the 2016 SARs (Carretta *et al.* 2016).

**Table 1. Marine Mammal Species Potentially Present in Region of Activity**

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) <sup>1</sup>	Stock abundance (CV, N <sub>min</sub> , most recent abundance survey) <sup>2</sup>	PBR	Annual M/SI <sup>3</sup>
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae						
Gray whale	<i>Eschrichtius robustus</i>	Eastern North Pacific	-; N	20,990 (0.05; 20,125; 2011)	624	132
Family Balaenidae						
Humpback whale	<i>Megaptera novaeangliae novaeangliae</i>	California/Oregon/Washington	E; D	1,918 (0.03; 1,855; 2011)	11.0	≥ 5.5
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Killer whale	<i>Orcinus orca</i>	Eastern North Pacific Offshore	-; N	240 (0.49, 162, 2008)	1.6	0
Risso’s dolphin	<i>Grampus griseus</i>	California/Oregon/Washington	-; N	6,336 (0.32; (4,817, 2014)	46	≥3.7



Bottlenose dolphin	<i>Tursiops truncatus</i>	California Coastal	-; N	453 (0.06, 346, 2011)	2.7	≥2.0
Family Phocoenidae (porpoises)						
Harbor Porpoise	<i>Phocoena phocoena</i>	Monterey Bay	-; N	3,715 (0.51; 2,480; 2011)	25	0
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
California sea lion	<i>Zalophus californianus</i>	U.S.	-; N	296,750 (na, 153,337, 2011)	9,200	389
Family Phocidae (earless seals)						
Harbor seal	<i>Phoca vitulina</i>	California	-; N	30,968 (na; 27,348 2012)	1,641	43

1 - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

2- NMFS marine mammal stock assessment reports online at: [www.nmfs.noaa.gov/pr/sars/](http://www.nmfs.noaa.gov/pr/sars/). CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable.

3 - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual mortality/serious injury (M/SI) often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

All species that could potentially occur in the proposed project area are included in Table 1. As described below, all eight species temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur, and we have proposed authorizing it. Some additional information about species being taken is provided below.

California sea lion

California sea lions breed during July on the Channel Islands off southern California which is approximately 100 mi (161 km) south of MBNMS, and off Baja and mainland Mexico (Odell 1981), although a few pups have been born on Año Nuevo Island (in San Mateo County) (Keith *et al.*, 1984). Following the breeding season on the Channel Islands, most adult and sub-adult males migrate northward to central and northern California and to the Pacific Northwest, while most females and young animals either

remain on or near the breeding grounds throughout the year or move southward or northward, as far as Monterey Bay.

Stage structure of California sea lions within the MBNMS varies by location, but generally, the majority of animals are adult and subadult males, primarily using the central California area to feed during the non-breeding season and are most common in the MBNMS during fall and spring migrations between southern breeding areas and northern feeding areas. Though males are generally most common, females may comprise 34 to 37 percent of juvenile individuals on the Monterey breakwater during El Niño events (Nicholson 1986). California sea lions are the most abundant marine mammal in the project area and regularly use the Monterey Breakwater and portions of the pier as a haul-out site.

#### Harbor seal

In California, there are approximately 400 to 600 haul-out sites located on a mixture of rock shores, intertidal sand bars, and beaches associated with the mainland and offshore islands (NOAA 2015c). Harbor seals are residents in the MBNMS throughout the year. They haul out at dozens of sites from Point Sur to Año Nuevo. Within MBNMS, tagged harbor seals have been documented to move substantial distances (10-20 km (3.9-7.8 mi)) to foraging areas each night (Oxman 1995; Trumble 1995). Overall, radio-tagged individuals have moved total distances of 480 km (Allen *et al.*, 1987). Pupping within the MBNMS occurs primarily during March and April, followed by a molt during May and June. Peak abundance on land within the Sanctuary is reached in late spring and early summer when harbor seals haul out to breed, give birth to pups, and molt.

Pacific harbor seals are not known to regularly use the Monterey Breakwater as a haul-out site, but may use beaches or other relatively low-gradient areas to haul-out in the project area, and in areas nearby such as beaches along Cannery Row in the City of Monterey.

#### Harbor porpoise

The harbor porpoise is a resident species of Monterey Bay and could occur within the project area. The Monterey Bay stock of harbor porpoise occurs from Point Sur to near Pigeon Point (Forney *et al.* 2014).

#### Risso's dolphin and Bottlenose dolphin

Breeding and calving for Risso's dolphin may occur year-round with a gestation period of 13 to 14 months and most births occurring from fall to winter in California waters (NOAA 2012). The California coastal bottlenose dolphin has been consistently sighted in and around Monterey Bay and could occur within the project area (NOAA 2008).

#### Killer whales

Killer whales (both West Coast transients and Eastern North Pacific offshore stocks) visit the MBNMS on an intermittent and unpredictable basis. Transient killer whales prey on gray whales and California sea lions within the MBNMS, and have the potential to occur in the project area (MBNMS 2016).

#### Gray whale

From mid-February to May gray whales can be seen migrating northward with their calves along the West Coast (NOAA 2013a). The population migrates south along the West Coast in the fall to wintering grounds on the west coast of Baja California, Mexico, and the southeastern Gulf of California (NOAA 2014). Although gray whales are not resident

species within the project area, during their annual migration they can occur within approximately two miles of the coast of Monterey Bay (MBNMS 2014).

#### Humpback whale

Humpback whales are one of the more commonly observed large baleen whales in the MBNMS, mostly seen during summer and fall as they are feeding (NOAA 2014b). Both the Mexico Distinct Population Segment (DPS) and the Central America DPS can occur in the vicinity of the project area. Humpback whales are typically found further offshore than gray whales, but since 2014 higher numbers of humpback whales have been observed in and near Monterey Bay by whale-watching vessels.

#### *Marine Mammal Hearing*

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.* 1995; Wartzok and Ketten 1999; Au and Hastings 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2016a) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 dB threshold from the normalized

composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. The functional groups and the associated frequencies are indicated below (note that these frequency ranges correspond to the range for the composite group, with the entire range not necessarily reflecting the capabilities of every species within that group):

- Low-frequency cetaceans (mysticetes): generalized hearing is estimated to occur between approximately 7 hertz (Hz) and 35 kilohertz (kHz), with best hearing estimated to be from 100 Hz to 8 kHz;
- Mid-frequency cetaceans (larger toothed whales, beaked whales, and most delphinids): generalized hearing is estimated to occur between approximately 150 Hz and 160 kHz, with best hearing from 10 to less than 100 kHz;
- High-frequency cetaceans (porpoises, river dolphins, and members of the genera *Kogia* and *Cephalorhynchus*; including two members of the genus *Lagenorhynchus*, on the basis of recent echolocation data and genetic data): generalized hearing is estimated to occur between approximately 275 Hz and 160 kHz.
- Pinnipeds in water; Phocidae (true seals): generalized hearing is estimated to occur between approximately 50 Hz to 86 kHz, with best hearing between 1-50 kHz;
- Pinnipeds in water; Otariidae (eared seals and sea lions): generalized hearing is estimated to occur between 60 Hz and 39 kHz, with best hearing between 2-48 kHz.

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended

frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.*, 2006; Kastelein *et al.*, 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2016a) for a review of available information. Eight marine mammal species (6 cetacean and 2 pinniped (1 otariid and 1 phocid species) have the reasonable potential to co-occur with the proposed survey activities. Please refer to Table 1. Of the cetacean species that may be present, three are classified as low-frequency cetaceans (*i.e.*, all mysticete species), two are classified as mid-frequency cetaceans (*i.e.*, all delphinid and ziphiid species), and two are classified as high-frequency cetaceans (*i.e.*, harbor porpoise).

### **Potential Effects of Specified Activities on Marine Mammals and their Habitat**

This section includes a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat. The “Estimated Take by Incidental Harassment” section later in this document will include a quantitative analysis of the number of individuals that are expected to be taken by this activity. The “Negligible Impact Analysis and Determination” section will consider the content of this section, the “Estimated Take by Incidental Harassment” section, and the “Proposed Mitigation” section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

The USCG Monterey Station Project involves in-water pile driving and pile removal that could adversely affect marine mammal species and stocks by exposing them to elevated underwater noise levels in the vicinity of the activity area. Although marine mammals (primarily pinnipeds hauled out on the adjacent jetty) could be exposed to

airborne noise associated with pile replacement, airborne noise would likely cause behavioral responses similar to those discussed below in relation to underwater noise and is accounted for in the “Estimated Take” section and therefore is not discussed further.

Exposure to high intensity sound for a sufficient duration may result in auditory effects such as a noise-induced threshold shift (TS)—an increase in the auditory threshold after exposure to noise (Finneran *et al.* 2005). Factors that influence the amount of threshold shift include the amplitude, duration, frequency content, temporal pattern, and energy distribution of noise exposure. The magnitude of hearing threshold shift normally decreases over time following cessation of the noise exposure. The amount of threshold shift just after exposure is the initial threshold shift. If the threshold shift eventually returns to zero (*i.e.*, the threshold returns to the pre-exposure value), it is a temporary threshold shift (Southall *et al.* 2007).

*Threshold Shift (noise-induced loss of hearing)* – When animals exhibit reduced hearing sensitivity (*i.e.*, sounds must be louder for an animal to detect them) following exposure to an intense sound or sound for long duration, it is referred to as TS. An animal can experience temporary threshold shift (TTS) or permanent threshold shift (PTS). TTS can last from minutes or hours to days (*i.e.*, there is complete recovery), can occur in specific frequency ranges (*i.e.*, an animal might only have a temporary loss of hearing sensitivity between the frequencies of 1 and 10 kHz), and can be of varying amounts (for example, an animal’s hearing sensitivity might be reduced initially by only 6 dB or reduced by 30 dB). PTS is permanent, but some recovery is possible. PTS can also occur in a specific frequency range and amount as mentioned above for TTS.

For marine mammals, published data are limited to the captive bottlenose dolphin, beluga, harbor porpoise, and Yangtze finless porpoise (Finneran *et al.*, 2000, 2002, 2003, 2005, 2007, 2010a, 2010b; Finneran and Schlundt, 2010; Lucke *et al.*, 2009; Mooney *et al.*, 2009a, 2009b; Popov *et al.*, 2011a, 2011b; Kastelein *et al.*, 2012a; Schlundt *et al.*, 2000; Nachtigall *et al.*, 2003, 2004). For pinnipeds in water, data are limited to measurements of TTS in harbor seals, an elephant seal, and California sea lions (Kastak *et al.*, 1999, 2005; Kastelein *et al.*, 2012b).

Marine mammal hearing plays a critical role in communication with conspecifics, and interpretation of environmental cues for purposes such as predator avoidance and prey capture. Depending on the degree (elevation of threshold in dB), duration (*i.e.*, recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious (similar to those discussed in auditory masking, below). For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that occurs during a time where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during time when communication is critical for successful mother/calf interactions could have more serious impacts. Also, depending on the degree and frequency range, the effects of PTS on an animal could range in severity, although it is considered generally more serious because it is a permanent condition. Of note, reduced hearing sensitivity as a simple function of aging has been observed in marine mammals, as well as humans and other taxa (Southall *et al.* 2007), so one can infer that strategies exist for coping with this condition to some degree, though likely not without cost.



*Masking* - In addition, chronic exposure to excessive, though not high-intensity, noise could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions (Clark *et al.* 2009). Acoustic masking is when other noises such as from human sources interfere with animal detection of acoustic signals such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. Therefore, under certain circumstances, marine mammals whose acoustical sensors or environment are being severely masked could also be impaired from maximizing their performance fitness in survival and reproduction.

Masking occurs at the frequency band that the animals utilize. Therefore, since noise generated from vibratory pile driving activity is mostly concentrated at low frequency ranges, it may have less effect on high frequency echolocation sounds by odontocetes (toothed whales). However, lower frequency man-made noises are more likely to affect detection of communication calls and other potentially important natural sounds such as surf and prey noise. It may also affect communication signals when they occur near the noise band and thus reduce the communication space of animals (*e.g.*, Clark *et al.* 2009) and cause increased stress levels (*e.g.*, Foote *et al.* 2004; Holt *et al.* 2009).

Unlike TS, masking, which can occur over large temporal and spatial scales, can potentially affect the species at population, community, or even ecosystem levels, as well as individual levels. Masking affects both senders and receivers of the signals and could have long-term chronic effects on marine mammal species and populations. Recent science suggests that low frequency ambient sound levels have increased by as much as 20 dB (more than three times in terms of sound pressure level) in the world's ocean from pre-industrial periods, and most of these increases are from distant shipping (Hildebrand 2009).

*Behavioral disturbance* - Finally, marine mammals' exposure to certain sounds could lead to behavioral disturbance (Richardson *et al.*, 1995), such as: changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping); avoidance of areas where noise sources are located; and/or flight responses (*e.g.*, pinnipeds flushing into water from haulouts or rookeries).

The onset of behavioral disturbance from anthropogenic noise depends on both external factors (characteristics of noise sources and their paths) and the receiving animals (hearing, motivation, experience, demography) and is also difficult to predict (Southall *et al.*, 2007). Currently NMFS uses a received level of 160 dB re 1  $\mu$ Pa root mean square (rms) to predict the onset of behavioral harassment from impulse noises (such as impact pile driving), and 120 dB re 1  $\mu$ Pa (rms) for continuous noises (such as vibratory pile driving). For the proposed USCG Monterey Station Project, both of these noise levels are considered for effects analysis because the USCG plans to use both impact and vibratory pile driving, as well as vibratory pile removal.

The biological significance of many of these behavioral disturbances is difficult to predict, especially if the detected disturbances appear minor. However, the consequences of behavioral modification could be biologically significant if the change affects growth, survival, and/or reproduction, which depends on the severity, duration, and context of the effects.

*Habitat* - The primary potential impacts to marine mammal habitat are associated with elevated sound levels produced by pile driving and removal associated with marine

mammal prey species. However, other potential impacts to the surrounding habitat and prey species from physical disturbance are also possible.

No permanent impacts to habitat are proposed to or would occur as a result of the proposed project. The USCG's proposed Station Monterey waterfront repair activity would not increase the pier's existing footprint, and no new structures would be installed that would result in the loss of additional habitat. A temporary, small-scale loss of foraging habitat may occur for marine mammals if marine mammals leave the area during pile extraction and driving activities.

Short-term turbidity is a water quality effect of most in-water work, including pile driving. Cetaceans are not expected to be close enough to the Monterey Station Project to experience turbidity, and any pinnipeds will be transiting the terminal area and could avoid localized areas of turbidity. Therefore, the impact from increased turbidity levels is expected to be discountable to marine mammals.

Acoustic energy created during pile replacement work would have the potential to disturb fish within the vicinity of the pile replacement work. As a result, the affected area could temporarily lose foraging value to marine mammals. During pile driving, high noise levels may exclude fish from the vicinity of pile driving. Hastings and Popper (2005) identified several studies that suggest fish will relocate to avoid areas of damaging noise energy. Therefore, if fish leave the area of disturbance, pinniped foraging habitat may have temporarily decreased foraging value when piles are driven using impact hammering. The duration of fish avoidance of this area after pile driving stops is unknown. However, the affected area represents an extremely small portion of the total area within foraging range of marine mammals that may be present in the project area.

Monterey Bay is classified as Essential Fish Habitat (EFH) under the Magnuson-Stevens Fisheries Conservation and Management Act, as amended by the Sustainable Fisheries Act. The EFH provisions of the Sustainable Fisheries Act are designed to protect fisheries habitat from being lost due to disturbance and degradation. The act requires implementation of measures to conserve and enhance EFH. The Monterey Bay is classified as an EFH for 118 species of commercially important fish, 30 of which have potential to occur within the project area. Some of these species are likely prey to pinnipeds. In addition to EFH designations, portions of the Monterey Bay are designated as a Habitat Area of Particular Concern (HAPC) for various fish species within the Pacific Groundfish, Pacific Coast Salmon, Highly Migratory Species, and Coastal Pelagic Fisheries management plans. A concurrence letter was issued by NMFS (2013) (and still applies) concluding that the proposed action would adversely affect EFH for various federally managed fish species, including a temporary increase in suspended sediments in the water column from pile driving and removal, conversion of soft bottom habitat to artificial substrate, and an increase in underwater sound levels in the water column associated with pile driving. However, the project includes measures to avoid, minimize, or otherwise offset adverse effects, such that NMFS has no further EFH conservation recommendations to provide (NOAA 2013).

During construction activity of the proposed USCG Monterey Station Project, only a small fraction of the available habitat of the Monterey Harbor would be ensonified within Monterey Bay at any given time. Disturbance to fish species would be short-term and fish would be expected to return to their pre-disturbance behavior once the pile driving activity ceases (refer to the USCG's SEA). The impacts to marine mammals and the food sources

that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or their populations. For all the discussed above reasons, any adverse effects to marine mammal habitat in the area from the USCG's proposed Monterey Station project would not be significant.

### **Estimated Take**

This section provides an estimate of the number of incidental takes proposed for authorization through this IHA, which will inform both NMFS's consideration of whether the number of takes is "small" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to noise from pile driving and removal activities. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures (*i.e.*, shutdown measures – discussed in detail below in Proposed Mitigation section), Level A harassment is neither anticipated nor proposed to be authorized.

As described previously, no mortality is anticipated or proposed to be authorized for this activity. Below we describe how the take is estimated.

Described in the most basic way, we estimate take by considering: 1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of hearing impairment; 2) the area or volume of water that will be ensonified above these levels in a day; 3) the density or occurrence of marine mammals within these ensonified areas; and, 4) and the number of days of activities. Below, we describe these components in more detail and present the proposed take estimate.

### *Acoustic Thresholds*

Using the best available science, NMFS has developed acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment for non-explosive sources – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.* 2007, Ellison *et al.* 2011). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120

dB re 1  $\mu$ Pa (rms) for continuous (*e.g.*, vibratory pile-driving, drilling) sources and above 160 dB re 1  $\mu$ Pa (rms) for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources. USCG's proposed activity includes the use of continuous (vibratory pile driving and removal) and impulsive (impact pile driving) sources, and therefore the 120 and 160 dB re 1  $\mu$ Pa (rms) are applicable.

Level A harassment for non-explosive sources - NMFS's Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS, 2016a) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). USCG's proposed activity includes the use of non-impulsive (vibratory pile driving and removal) and impulsive (impact pile driving) sources.

These thresholds were developed by compiling and synthesizing the best available science and soliciting input multiple times from both the public and peer reviewers to inform the final product, and are provided in Table 2 below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2016 Technical Guidance, which may be accessed at:

[www.nmfs.noaa.gov/pr/acoustics/guidelines.htm](http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm).

**Table 2. Thresholds Identifying the Onset of Permanent Threshold Shift.**

Hearing Group	PTS Onset Thresholds	
	Impulsive	Non-impulsive
<b>Low-Frequency (LF) Cetaceans</b>	$L_{pk,flat}$ : 219 dB $L_{E,LF,24h}$ : 183 dB	$L_{E,LF,24h}$ : 199 dB
<b>Mid-Frequency (MF) Cetaceans</b>	$L_{pk,flat}$ : 230 dB $L_{E,MF,24h}$ : 185 dB	$L_{E,MF,24h}$ : 198 dB

<b>High-Frequency (HF) Cetaceans</b>	$L_{pk,flat}$ : 202 dB $L_{E,HF,24h}$ : 155 dB	$L_{E,HF,24h}$ : 173 dB
<b>Phocid Pinnipeds (PW) (Underwater)</b>	$L_{pk,flat}$ : 218 dB $L_{E,PW,24h}$ : 185 dB	$L_{E,PW,24h}$ : 201 dB
<b>Otariid Pinnipeds (OW) (Underwater)</b>	$L_{pk,flat}$ : 232 dB $L_{E,OW,24h}$ : 203 dB	$L_{E,OW,24h}$ : 219 dB
<p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p>Note: Peak sound pressure (<math>L_{pk}</math>) has a reference value of 1 <math>\mu</math>Pa, and cumulative sound exposure level (LE) has a reference value of 1 <math>\mu</math>Pa<sup>2</sup>s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (<i>i.e.</i>, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p>		

### *Ensonified Area*

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds.

Background noise is the sound level that would exist without the proposed activity (pile driving and removal, in this case), while ambient sound levels are those without human activity (NOAA 2009). Natural actions that contribute to ambient noise include waves, wind, rainfall, current fluctuations, chemical composition, and biological sound sources (*e.g.*, marine mammals, fish, and shrimp, Carr *et al.* 2006). Background noise levels will be compared to the NOAA/NMFS threshold levels designed to protect marine mammals to determine the Level B Harassment Zones for noise sources. The background noise at Monterey Harbor is relatively high due to boat traffic, foot traffic, and noise from the USCG Monterey Station.



Pile installation would be adjacent to a rock jetty that would provide substantial underwater shielding of sound transmission to areas north (or through the jetty) (see Figure 1-2 of the Application).

To more accurately estimate the extent of underwater noise, the software package *SoundPlan* was used to simulate the effect of the Monterey Breakwater in reducing underwater sound transmission from the proposed project (Illingworth and Rodkin, Inc. 2012). A conservative source level of 168 dB rms at 33 feet (ft) (10 meters (m)) level was used to characterize the sound that would be produced from vibratory pile installation (from data produced by the Navy for their Test Pile Program in Bangor, Washington and then also compared to CALTRANS data (see Appendix A of the application)). For the Navy's Test Pile Program, there was a considerable range in the rms levels measured across vibratory pile driving event, where the highest average rms level was 169 dB rms at 33 ft (10 m) for 36-inch piles. In comparison, the range of vibratory sound levels at 33 ft or 10 m reported by CALTRANS is 155 dB rms for 12-in diameter piles to 175 dB rms for 36-in piles (based on maximum 1-second rms levels). All of these piles were driven in relatively shallow water similar to Monterey Harbor. Because the USCG proposes to use 14-in steel piles, and to be conservative, the USCG input into *Sound Plan* an rms level greater than those for 12-in piles from CALTRANS data and closer to the rms level for 36-in piles from the CALTRANS and the Navy's Test Pile Program data.

Table 3 shows the results of the modeled underwater noise analysis for vibratory pile driving where 120 dB RMS (Level B threshold) levels would end, and Figure 5-1 from the application shows the pattern of sound expected from vibratory pile extraction and pile installation, taking into account shielding from the Monterey Breakwater. From these data,

a Level B zone of influence (ZOI) was calculated at approximately 7.3 square kilometers ( $\text{km}^2$ ). The modeled distances shown in the table below are likely an overestimate of the extent of underwater noise, because practical spreading loss ( $15 \log_{10}$ ) sound propagation were assumed, and the Monterey Breakwater would likely reduce noise considerably faster than assumed. Per the sound assessment completed for the project (included in Appendix A of the application) the following assumptions and parameters were used for the analysis: For vibratory pile installation, it is estimated that it would take approximately 20 minutes (1200 seconds) to vibrate in each pile.

**Table 3. Modeled Extent of Level B Zones from Vibratory Pile Extraction and Driving.**

<b>Modeling Scenario</b>	<b>Level B Zone (Distance to 120 dB rms)</b>
Modeled north	2,000 m
Modeled northeast shoreline	2,400 m
Modeled east to shoreline	1,800 m
Modeled south to shoreline	550 m
<b>Area of Influence</b>	<b>7.3 <math>\text{km}^2</math></b>

Notes: dB = decibel, RMS = root mean square

The extent of underwater noise from impact pile driving was also predicted using the *SoundPlan* software package as described above for vibratory pile driving. Per the sound assessment completed for the project and included in Appendix A the following assumptions and parameters were used for the analysis: the assumption that a hammer is used that moves the pile at about 30 to 40 blows per minute, up to 20 minutes of impact pile driving would be required for each pile. Measurements conducted for the USCG Tongue Point Pier Repairs in the Columbia River were found to be most representative for this project. The Tongue Point Pier included installation of 24-in steel pipe piles. Average sound levels measured at Tongue Point include peak pressures of 189 to 207 dB, rms sound

pressure levels of 178 to 189 dB, and SEL levels of 160 to 175 dB per strike at 33 ft (10 m). Due to the difference in pile sizes, use of the Tongue Point data would likely overestimate sound levels expected at the proposed USCG Station Monterey project. Based on the Tongue Point sound measurements, unattenuated near-source impact pile driving levels of 208 dB peak, 195 rms and 174 dB SEL were applied to this project. Table 4 shows the extent of noise levels for NMFS' acoustic criteria, assuming the use of noise attenuation (bubble curtain). Figure 5-3 of the application shows the extent of attenuated noise levels for impact pile driving out to the NMFS behavioral criterion of 160 dB rms. The area encompassed by the 160 dB criterion is approximately 0.27 km<sup>2</sup>.

**Table 4. Modeled Extent of Level B Zones from Impact Pile Driving.**

Modeling Scenario	Distance to Marine Mammal Criteria
	rms (dB re: 1μPa)
	160 dB (Level B Threshold)
Modeled attenuated noise transmission north and northeast (through breakwater)	76 m
Modeled attenuated noise transmission in all other directions	465 m
<b>Area of Influence</b>	<b>0.27 km<sup>2</sup></b>

Notes:

Assumes 10 dB of underwater noise attenuation by using a bubble curtain during pile driving

Distances and method of calculation are presented in Appendix A of the application.

dB = decibel

rms = root mean square (dB re: 1μPa)

The incidental take requested is Level B harassment of any marine mammal occurring within the 160 dB rms disturbance threshold during impact pile driving of 14-in steel pipe piles; the 120 dB rms disturbance threshold for vibratory pile driving of 14-in

steel pipe piles; and the 120 dB rms disturbance threshold for vibratory removal of 16-in to 18-in timber piles. Level B harassment zones have been established as described in Tables 3 and 4 that will be in place during active pile removal or installation.

When NMFS Technical Guidance (NMFS 2016) was published, in recognition of the fact that ensonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, we developed a User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to help predict takes. We note that because of some of the assumptions included in the methods used for these tools, we anticipate that isopleths produced are typically going to be overestimates of some degree, which will result in some degree of overestimate of Level A take. However, these tools offer the best way to predict appropriate isopleths when more sophisticated 3D modeling methods are not available, and NMFS continues to develop ways to quantitatively refine these tools, and will qualitatively address the output where appropriate. For stationary sources such as vibratory and impact pile driving, NMFS's User Spreadsheet predicts the closest distance at which, if a marine mammal remained at that distance the whole duration of the activity, it would not incur PTS. Inputs used in the User Spreadsheet, and the resulting isopleths are reported below (Tables 5 and 6).

The PTS isopleths were identified for each hearing group for impact and vibratory installation and removal methods that will be used in the proposed Monterey Station Project. The PTS isopleth distances were calculated using the NMFS acoustic threshold calculator (NMFS 2016), with inputs based on measured and surrogate noise measurements. Data from the U.S Navy for their Test Pile Program at Bangor, Washington

with a source level of 168 dB rms (at 10 m) was used to characterize the sound that would be produced from vibratory pile driving and removal. For impact pile driving, referenced data provided for similar piles and substrate identified in the California Department of Transportation Compendium of Pile Driving Sound Data Report (Caltrans 2007) with a source level (in SEL) of 174 dB at a distance of 10 m with an average of 30 strikes per pile.

**Table 5. NMFS Technical Acoustic Guidance User Spreadsheet Input to Predict PTS Isopleths.**

<b>USER SPREADSHEET INPUT</b>		
	<b>Sound Source 1</b>	<b>Sound Source 2</b>
Spreadsheet Tab Used	A) Vibratory pile driving (removal and installation)	E.1) Impact pile driving (installation)
Source Level (rms SPL)	168 dB	
Source Level (Single Strike/shot SEL)		174 dB
Weighting Factor Adjustment (kHz)	2.5	2
a) Number of strikes in 1 h		30
a) Activity Duration (h) within 24-h period	4	5
Propagation (xLogR)	15	15
Distance of source level measurement (meters)*	10	14

**Table 6. NMFS Technical Acoustic Guidance User Spreadsheet Output for Predicted PTS Isopleths and Level A Daily Ensonified Areas.**

<b>USER SPREADSHEET OUTPUT</b>					
	<b>PTS Isopleth (meters)</b>				
<b>Sound Source Type</b>	<b>Low-Frequency Cetaceans</b>	<b>Mid-Frequency Cetaceans</b>	<b>High-Frequency Cetaceans</b>	<b>Phocid Pinnipeds</b>	<b>Otariid Pinnipeds</b>
<b>Vibratory (removal and installation)</b>	50.4	4.5	74.5	30.6	2.2
<b>Impact (installation)</b>	70.8	2.5	84.4	37.9	2.8
	<b>Daily ensonified area (km<sup>2</sup>)</b>				
<b>Vibratory (pile removal and</b>	0.00798	0.00006	0.01744	0.00294	0.00002

installation)					
<b>Impact (installation)</b>	0.01575	0.00002	0.02238	0.00451	0.00002

#### *Marine Mammal Occurrence and Take Calculation and Estimation*

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculation and we describe how the marine mammal occurrence information is brought together to produce a quantitative take estimate.

Take estimates are based on the number of animals per unit area in the project area multiplied by the area size of ensonified zones within which received noise levels exceed certain thresholds (*i.e.*, Level B harassment) from specific activities, then multiplied by the total number of days such activities would occur. Local abundance data are used for take calculations for the proposed authorized take where density is not available or applicable to the project area.

Unless otherwise described, incidental take is estimated by the following equation:

Incidental take estimate = species density\* zone of influence (7.3 km<sup>2</sup>) \* days of pile-related activity (8 days)

#### Harbor seals

Pacific harbor seals are much less abundant in the project area than California sea lions, and only two annual surveys conducted since 1998 identified any individuals. The 2004 annual pinniped survey conducted by NMFS counted 28 Pacific harbor seals in Monterey Harbor in 2004, and 1 in 2005 (Lowry 2012). Pacific harbor seals hauled-out along Cannery Row, north of the Monterey Breakwater, ranged from 1 to 24 in 2002, 2004, and 2009. During repairs on the Pier in 2009, Pacific harbor seals were occasionally observed in the nearby waters, but were

never observed to haul-out on the breakwater (Harvey and Hoover 2009). The density for harbor seals was determined by drawing a 5 km radius in ArcGIS with the jetty haul-out site at the center. The area within this circle was calculated, excluding the land, resulting in a 29 km<sup>2</sup> foraging area. The calculation for take of Harbor seals estimate assumes 28 individuals (the most observed during any single survey) to be in the water at any given time within 5 km of the breakwater (area 29 km<sup>2</sup>); therefore, the calculated density is 0.97 seals/km<sup>2</sup>. The estimated Level B take is 0.97 seals multiplied by 7.3 km<sup>2</sup> and 8 days of activity for a total of 57 harbor seals (see Table 7). Since the calculated Level A zones of phocids are small and mitigation is in place to avoid Level A take (Table 6), we do not consider it likely that any harbor seals would be taken by Level A harassment.

#### California sea lions

The calculation for Level B take of California sea lions in the water assumes an average density of 8.62 individuals/km<sup>2</sup>. This density was determined by drawing a 5 km radius in ArcGIS with the jetty haul-out site at the center. The area within this circle was calculated, excluding the land, resulting in a 29 km<sup>2</sup> foraging area. An average of 250 sea lions were assumed in the water at any given time. Therefore, 250 sea lions divided by 29 km<sup>2</sup> equals 8.62 sea lions/km<sup>2</sup>. Estimated take is then calculated using 8.62 sea lions multiplied by 7.3 km<sup>2</sup> and 8 days of activity for a total of 504 California sea lions (see Table 7). For the additional California sea lions that are present on the breakwater (which we would also expect to enter the water during the project): the overall average number of sea lions for all of the surveys of the Monterey Breakwater combined was 250 individuals. Therefore, 250 animals was multiplied by 8 days of activity for a total of 2,000 California sea lions (see Table 7). Since the calculated Level A zones of otariids are all very small and

mitigation is in place to avoid Level A take (Table 6), we do not consider it likely that any sea lions would be taken by Level A harassment.

#### Killer whale

Due to the low frequency and unpredictability of killer whales entering the project area, the application of a density equation is not reasonable for predicting take. When killer whales enter Monterey Bay, they typically are in groups of 3 to 8 at a time (Guzman 2016). To be conservative, the proposed take estimate for Level B harassment is based on a larger group of eight animals that may enter the area (Table 7). Since the Level A zones of mid-frequency cetaceans are small and mitigation is in place to avoid Level A take (Table 6), we do not consider it likely that any killer whales would be taken by Level A harassment.

#### Bottlenose dolphin

Abundance and densities of cetaceans in the California Current ecosystem were conducted from 1991 to 2005 (Barlow, Forney 2007). The results of the surveys indicate that bottlenose dolphin population density throughout the entire west coast shoreline is 1.78 individuals/100 km<sup>2</sup>. During the same survey, the mean group size for bottlenose dolphins observed in Central California was four individuals. Other, more recent data suggest that densities may be up to 0.04/km<sup>2</sup> (Weller 2016). Even when using the higher density, estimated take results in very low numbers (<1 over the entire period of construction). Rather than using density calculations to estimate take, to be conservative, the proposed Level B take is a small pod of 10 bottlenose dolphins (Table 7). Since the Level A zones of mid-frequency cetaceans are small and mitigation is in place to avoid Level A take (Table 6), we do not consider it likely that any bottlenose dolphins would be taken by Level A harassment.



### Risso's dolphin

Because there is not reliable local data for Monterey Bay, the proposed Level B take estimate for Risso's dolphins is a single occurrence of a small pod of 10 animals (see Table 7) as groups of Risso's dolphins average between 10-30 animals. Since the Level A zones of mid-frequency cetaceans are small and mitigation is in place to avoid Level A take (Table 6), we do not consider it likely that any Risso's dolphin would be taken by Level A harassment.

### Harbor porpoise

An estimate of the density of harbor porpoise in the southern portion of Monterey Bay nearshore is approximately 2.321 per km<sup>2</sup> (Forney *et al.* 2014). Therefore, the estimated take for Level B harassment is 2.231 porpoise multiplied by 7.3 km<sup>2</sup> and 8 days of activity for a total of 136 harbor porpoise (see Table 7). Since the calculated Level A zones of high frequency cetaceans are small and mitigation is in place to avoid Level A take (Table 6), we do not consider it likely that any harbor porpoise would be taken by Level A harassment.

### Humpback whale

Humpback whales are typically found further offshore than gray whales and occurrence is rare; however, since 2014 greater numbers of humpback whales have been observed in and near Monterey Bay by whale-watching vessels. Because USCG will shutdown for all observed humpbacks (in Level A and B zones), no takes of humpback whales are proposed.

### Gray whale

The occurrence of gray whales is extremely rare near shore in the project area. If gray whales would approach the project area they would be more likely to occur during the spring migration north, when they tend to stay closer to shore than during the winter southern migration. The NOAA National Center for Coastal Ocean Science (NCCOS) reported densities of gray whales at 0.1 to 0.5 per km<sup>2</sup> (NCCOS 2007); however, it is unclear how applicable these data are for the very near-shore environment of the project area. Therefore, instead of using density, the proposed Level B take of four gray whales is proposed for the project. Since the Level A zones of low-frequency cetaceans are small and mitigation is in place to avoid Level A take (see Table 6) we do not consider it likely that any gray whales would be taken by Level A harassment during removal or impact installation.

**Table 7. Summary of Requested Incidental Take by Level A and Level B Harassment.**

<b>Species</b>	<b>Stock Size</b>	<b>Proposed Authorized Level B Take</b>	<b>Proposed Authorized Total Take</b>	<b>% of Population</b>
Pacific harbor seal ( <i>Phoca vitulina</i> )	30,968	57	57	Less than 1
California sea lion ( <i>Zalophus californianus</i> )	296,750	504 (Animals already in the water)	2,504	Less than 1
California sea lion ( <i>Zalophus californianus</i> )	296,750	2,000 (Animals that enter the water from the breakwater)		
Transient killer whale ( <i>Orcinus orca</i> )	240	8	8	3.33
Bottlenose dolphin ( <i>Tursiops truncatus</i> )	453	10 (single occurrence of a small pod)	10	4.19
Risso's dolphin	6,336	10	10	Less than 1

<b>Species</b>	<b>Stock Size</b>	<b>Proposed Authorized Level B Take</b>	<b>Proposed Authorized Total Take</b>	<b>% of Population</b>
<i>(Grampus griseus)</i>		(single occurrence of a small pod)		
Harbor porpoise <i>(Phocoena phocoena)</i>	3,715	136	136	3.66
Humpback whale <i>(Megaptera novaengliae)</i>	1,918	0*	0	0
Gray whale <i>(Eschrichtius robustus)</i>	20,990	4	4	Less than 1

\*USCG will implement shutdown measures for any humpback observed; therefore, the take is considered to be zero.

### **Proposed Mitigation**

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, “and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking” for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

1) the manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned) the likelihood of effective implementation (probability implemented as planned), and;

2) the practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Several measures are proposed for mitigating effects on marine mammals from the pile installation and removal activities at for the USCG Monterey Station and are described below.

#### *Timing Restrictions*

All work would be conducted during daylight hours.

#### *Noise Attenuation*

A bubble curtain and cushion pads will be used during pile driving activities with an impact hammer to reduce sound levels. In addition, the USCG has proposed performing “pre-drilling.” Pre-drilling would be performed and would be discontinued when the pile tip is approximately five feet (ft) above the required pile tip elevation. Pre-drilling is a

method that starts the “hole” for the new pile; the pile is inserted after the hole has been pre-drilled which creates less friction and overall noise and turbidity during installation.

#### *Exclusion Zones*

Exclusion Zones calculated from the PTS isopleths will be implemented to protect marine mammals from Level A harassment (refer to Table 6). If a marine mammal is observed at or within the Exclusion Zone, work will shut down (stop work) until the individual has been observed outside of the zone, or has not been observed for at least 15 minutes for pinnipeds and small cetaceans and 30 minutes for large whales.

#### *Additional Shutdown Measures*

If a humpback whale is observed within the Level A or Level B zones, the USCG will implement shutdown measures. Work would not commence until 30-minutes after the last sighting of a humpback within these zones.

During impact pile driving because the Level B Zone is smaller (76 m) compared to the Level A Zone (84.4 m) for high frequency cetaceans for noise transmission north and northeast (through breakwater), the USCG will consider both the Level A and B zones to be at 84.4 m and will implement shutdown measures.

USCG will implement shutdown measures if the number of authorized takes for any particular species reaches the limit under the IHA and if such marine mammals are sighted within the vicinity of the project area and are approaching the Level B harassment zone during in-water construction activities.

If a marine mammal species under NMFS’ jurisdiction is observed within the Level A or B zones that has not been authorized for take, the USCG will implement shutdown measures.

### *Level B Harassment Zones*

USCG will monitor the Level B harassment ZOIs as described in Tables 3 and 4.

### *Soft-Start for Impact Pile Driving*

For impact pile installation, contractors will provide an initial set of three strikes from the impact hammer at 40 percent energy, followed by a one-minute waiting period, then two subsequent three-strike sets. Each day, USCG will use the soft-start technique at the beginning of impact pile driving, or if impact pile driving has ceased for more than 30 minutes.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

### **Proposed Monitoring and Reporting**

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth, "requirements pertaining to the monitoring and reporting of such taking." The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas).
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors.
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks.
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat).
- Mitigation and monitoring effectiveness.

Marine mammal monitoring will be conducted in strategic locations around the area of potential effects at all times during in-water pile driving and removal as described below:

- During pile removal or installation the observer will monitor from the most practicable vantage point possible (*i.e.*, the pier itself, the breakwater, adjacent boat docks

in the harbor, or a boat) to determine whether marine mammals enter the exclusion zone and to record take when marine mammals enter the relevant Level B Harassment Zones based on type of construction activity.

- If a marine mammal approaches an Exclusion Zone, the observation will be reported to the Construction Manager and the individual will be watched closely. If the marine mammal crosses into an Exclusion Zone, a stop-work order will be issued. In the event that a stop-work order is triggered, the observed marine mammal(s) will be closely monitored while it remains in or near the Exclusion Zone, and only when it moves well outside of the Exclusion Zone or has not been observed for at least 15 minutes for pinnipeds and 30 minutes for whales will the lead monitor allow work to recommence.

#### *Protected species observers*

USCG shall employ NMFS-approved protected species observers (PSOs) to conduct marine mammal monitoring for its Monterey Station Project. The PSOs will observe and collect data on marine mammals in and around the project area for 30 minutes before, during, and for 30 minutes after all pile removal and pile installation work. NMFS-approved PSOs shall meet the following requirements:

1. Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance. Use of binoculars may be necessary to correctly identify the target.
2. Advanced education in biological science, wildlife management, mammalogy or related fields (Bachelors degree or higher is preferred), but not required.
3. Experience or training in the field identification of marine mammals (cetaceans and pinnipeds).



4. Sufficient training, orientation or experience with the construction operation to provide for personal safety during observations.

5. Ability to communicate orally, by radio or in person, with project personnel to provide real time information on marine mammals observed in the area as necessary.

6. Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience).

7. Writing skills sufficient to prepare a report of observations that would include such information as the number and type of marine mammals observed; the behavior of marine mammals in the project area during construction, dates and times when observations were conducted; dates and times when in-water construction activities were conducted; and dates and times when marine mammals were present at or within the defined ZOI.

8. If a team of three or more observers are required, one observer should be designated as lead observer or monitoring coordinator. The lead observer must have prior experience working as an observer.

9. NMFS will require submission and approval of observer CVs.

10. PSOs will monitor marine mammals around the construction site using high-quality binoculars (*e.g.*, Zeiss, 10 x 42 power) and/or spotting scopes.

11. If marine mammals are observed, the following information will be documented:

(A) Date and time that monitored activity begins or ends;

(B) Construction activities occurring during each observation period;

(C) Weather parameters (*e.g.*, percent cover, visibility);

- (D) Water conditions (*e.g.*, sea state, tide state);
- (E) Species, numbers, and, if possible, sex and age class of marine mammals;
- (F) Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
- (G) Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
- (H) Locations of all marine mammal observations; and
- (I) Other human activity in the area.

#### *Proposed Reporting Measures*

##### Marine Mammal Monitoring Report

USCG would be required to submit a draft marine mammal monitoring report within 90 days after completion of the in-water construction work or the expiration of the IHA (if issued), whichever comes earlier. The report would include data from marine mammal sightings as described: date, time, location, species, group size, and behavior, any observed reactions to construction, distance to operating pile hammer, and construction activities occurring at time of sighting and environmental data for the period (*i.e.*, wind speed and direction, sea state, tidal state, cloud cover, and visibility). The marine mammal monitoring report will also include total takes, takes by day, and stop-work orders for each species. NMFS would have an opportunity to provide comments on the report, and if NMFS has comments, USCG would address the comments and submit a final report to NMFS within 30 days.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such as an injury (Level A harassment), serious injury, or mortality, USCG would immediately cease the specified activities and immediately report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS and the NMFS' West Coast Stranding Coordinator. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Description of the incident;
- Status of all sound source use in the 24 hrs preceding the incident;
- Water depth;
- Environmental conditions (*e.g.*, wind speed and direction, sea state, cloud cover, and visibility);
- Description of all marine mammal observations in the 24 hrs preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities would not resume until NMFS is able to review the circumstances of the prohibited take. NMFS would work with USCG to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. USCG may not resume their activities until notified by NMFS via letter, email, or telephone.

Reporting of Injured or Dead Marine Mammals

In the event that the USCG discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (*i.e.*, in less than a moderate state of decomposition as described in the next paragraph), USCG would immediately report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS and the NMFS' West Coast Stranding Coordinator. The report must include the same information identified in the paragraph above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS would work with USCG to determine whether modifications in the activities are appropriate.

In the event that USCG discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in the IHA (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), USCG would report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS and the NMFS Stranding Hotline and/or by email to the NMFS' West Coast Stranding Coordinator within 24 hrs of the discovery. USCG would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS. Activities may continue while NMFS reviews the circumstances of the incident.

### **Negligible Impact Analysis and Determination**

NMFS has defined negligible impact as “an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival” (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on

annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’s implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

No serious injury or mortality is anticipated or proposed to be authorized for the Monterey Station Project. Takes that are anticipated and proposed to be authorized are expected to be limited to short-term Level B harassment (behavioral) only. Marine mammals present in the vicinity of the action area and taken by Level B harassment would most likely show overt brief disturbance (startle reaction) and avoidance of the area from elevated noise levels during pile driving and pile removal and the implosion noise.

There is one endangered species that may occur in the project area, humpback whales. However, if any humpbacks are detected within the Level B harassment zone of the project area, the USCG will shut down.

The Monterey Breakwater is a haulout location for approximately 250 California sea lions. There are no other known critical habitat areas, haulouts or important feeding areas in close proximity to the project area.

The project also is not expected to have significant adverse effects on affected marine mammals' habitat, as analyzed in detail in the "Potential Effects of Specified Activities on Marine Mammals and their Habitat" section. Project activities would not permanently modify existing marine mammal habitat. The activities may kill some fish and cause other fish to leave the area temporarily, thus impacting marine mammals' foraging opportunities in a limited portion of the foraging range; but, because of the short duration of the activities and the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences. Therefore, given the consideration of potential impacts to marine mammal prey species and their physical environment, USCG's proposed Monterey Station would not adversely affect marine mammal habitat.

In summary and as described above, the following factors primarily support our preliminary determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated or authorized.
- Takes that are anticipated and proposed to be authorized are expected to be limited to short-term Level B harassment (behavioral).
- The project also is not expected to have significant adverse effects on affected marine mammals' habitat.

- There are no known important feeding or pupping areas. There is one haulout (the breakwater) within the project area. There are no other known important areas for marine mammals with the footprint of the project area.

- For five out of eight species, take is less than one percent of the stock abundance. Instances of take for the other three species (killer whale, bottlenose dolphin, and harbor porpoise) range from 3-4 percent of the stock abundance.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS preliminarily finds that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

### **Small Numbers**

As noted above, only small numbers of incidental take may be authorized under section 101(a)(5)(D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. Additionally, other factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

For five out of eight species, take is less than one percent of the stock abundance. Instances of take for the other three species (killer whale, bottlenose dolphin, and harbor porpoise) range from 3-4 percent of the stock abundance. Based on the analysis contained

herein of the proposed activity (including the proposed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS preliminarily finds that small numbers of marine mammals will be taken relative to the population sizes of the affected species or stocks.

### **Unmitigable Adverse Impact Analysis and Determination**

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

### **Endangered Species Act (ESA)**

Section 7(a)(2) of the ESA of 1973 (16 U.S.C. § 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally, in this case with the West Coast Regional Office, whenever we propose to authorize take for endangered or threatened species.

NMFS is proposing to not authorize take of humpback whales, which are listed under the ESA, as the applicant will implement shutdown measures whenever humpbacks are observed (Level A or B). Therefore, consultation under section 7 of the ESA is not required.

The Permit and Conservation Division has requested initiation of section 7 consultation with the West Coast Regional Office for the issuance of this IHA. NMFS will



conclude the ESA consultation prior to reaching a determination regarding the proposed issuance of the authorization.

### **Proposed Authorization**

As a result of these preliminary determinations, NMFS proposes to issue an IHA to the U.S. Coast Guard (USCG) for conducting pile driving and removal activities at the USCG Monterey Station, Monterey, California from October 2017 to October 2018, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. This section contains a draft of the IHA itself. The wording contained in this section is proposed for inclusion in the IHA (if issued).

The proposed IHA language is provided next.

1. This Authorization is valid from October 16, 2017, through October 15, 2018.
2. This Authorization is valid only for activities associated with in-water construction work at the USCG Monterey Station Project, Monterey, California.

3. General Condition

(a) The species authorized for taking, by Level B harassment only, and in the numbers shown in Table 7 are: California sea lion (*Zalophus californianus*), Pacific harbor seal (*Phoca vitulina*), harbor porpoise (*Phocoena phocoena*), Risso's dolphin (*Grampus griseus*), bottlenose dolphin (*Tursiops truncatus*), killer whale (*Orcinus orca*), and gray whale (*Eschrichtius robustus*).

(b) The authorization for taking by harassment is limited to the following acoustic sources and from the following activities:

- Impact pile driving;
- Vibratory pile driving; and

- Vibratory pile removal

#### 4. Prohibitions

(a) The taking, by incidental harassment only, is limited to the species listed under condition 3(a) above and by the numbers listed in Table 7 of this notice. The taking by serious injury or death of these species or the taking by harassment, injury or death of any other species of marine mammal is prohibited unless separately authorized or exempted under the MMPA and may result in the modification, suspension, or revocation of this Authorization.

(b) The taking of any marine mammal is prohibited whenever the required protected species observers (PSOs), required by condition 6(b), are not present in conformance with condition 6(b) of this Authorization.

#### 5. Mitigation

##### (a) Time Restriction

In-water construction work shall occur only during daylight hours.

##### (b) Noise Attenuation

A bubble curtain and cushion pads shall be used during pile driving activities with an impact hammer to reduce sound levels. In addition, the USCG has proposed performing “pre-drilling.” Pre-drilling shall be performed and would be discontinued when the pile tip is approximately five ft above the required pile tip elevation. Pre-drilling is a method that starts the “hole” for the new pile; the pile is inserted after the hole has been pre-drilled which creates less friction and overall noise and turbidity during installation.

##### (c) Level B Harassment Zones

USCG shall monitor the Level B harassment ZOIs as described in Table 3 and 4 of this notice.

(d) Exclusion Zones

USCG shall shut down (stop work) in the Exclusion Zones using the PTS isopleths as described in Table 6 of this notice to protect marine mammals from Level A harassment.

(i) USCG shall implement a minimum shutdown zone of 10 m radius around each pile for all construction methods other than pile driving for all marine mammals.

(ii) If a marine mammal is observed at or within the Exclusion Zone, work shall stop until the individual has been observed outside of the zone, or has not been observed for at least 15 minutes for pinnipeds and small cetaceans and 30 minutes for large whales.

(e) Additional Shutdown Measures

(i) If a humpback whale is observed within the Level A or Level B zones, the USCG shall implement shutdown measures. Work would not commence until 30-minutes after the last sighting of a humpback within these zones.

(ii) USCG shall implement shutdown measures if the number of authorized takes for any particular species reaches the limit under the IHA and if such marine mammals are sighted within the vicinity of the project area and are approaching the Level B harassment zone during in-water construction activities.

(iii) During impact pile driving because the Level B Zone is smaller (76 m) compared to the Level A Zone (84.4 m) for high frequency cetaceans for noise transmission north and northeast (through breakwater), the USCG shall consider both the Level A and B zones to be at 84.4 m and will implement shutdown measures.

(iv) If a species is observed within the Level A or B zones that has not been authorized for take, the USCG shall implement shutdown measures.

(f) Soft-Start for Impact Pile Driving

For impact pile installation, contractors will provide an initial set of three strikes from the impact hammer at 40 percent energy, followed by a one-minute waiting period, then two subsequent three-strike sets.

6. Monitoring:

(a) Protected Species Observers

USCG shall employ NMFS-approved PSOs to conduct marine mammal monitoring for its construction project. NMFS-approved PSOs will meet the following qualifications.

(i) Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance. Use of binoculars may be necessary to correctly identify the target.

(ii) Advanced education in biological science, wildlife management, mammalogy or related fields (Bachelors degree or higher is preferred), but not required.

(iii) Experience or training in the field identification of marine mammals (cetaceans and pinnipeds).

(iv) Sufficient training, orientation or experience with the construction operation to provide for personal safety during observations.

(v) Ability to communicate orally, by radio or in person, with project personnel to provide real time information on marine mammals observed in the area as necessary.

(vi) Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience).

(vii) Writing skills sufficient to prepare a report of observations that would include such information as the number and type of marine mammals observed; the behavior of marine mammals in the project area during construction, dates and times when observations were conducted; dates and times when in-water construction activities were conducted; and dates and times when marine mammals were present at or within the defined ZOI.

(viii) If a team of three or more observers are required, one observer should be designated as lead observer or monitoring coordinator. The lead observer must have prior experience working as an observer.

(ix) NMFS shall require submission and approval of observer CVs.

(b) Monitoring Protocols: PSOs shall be present on site at all times during pile removal and driving.

(i) A 30-minute pre-construction marine mammal monitoring shall be required before the first pile driving or pile removal of the day. A 30-minute post-construction marine mammal monitoring shall be required after the last pile driving or pile removal of the day. If the constructors take a break between subsequent pile driving or pile removal for more than 30 minutes, then additional 30-minute pre-construction marine mammal monitoring shall be required before the next start-up of pile driving or pile removal.

(ii) During pile removal or installation, the monitors shall be positioned such that each monitor has a most practicable vantage point possible (*i.e.*, the pier itself, the breakwater, adjacent boat docks in the harbor, or a boat) and distinct view-shed and the monitors collectively have overlapping view-sheds.

(iii) Monitors shall record take when marine mammals enter their relevant Level B Harassment Zones based on type of construction activity.

(iv) If a marine mammal approaches an Exclusion Zone, the observation shall be reported to the Construction Manager and the individual shall be watched closely. If the marine mammal crosses into an Exclusion Zone, a stop-work order shall be issued. In the event that a stop-work order is triggered, the observed marine mammal(s) shall be closely monitored while it remains in or near the Exclusion Zone, and only when it moves well outside of the Exclusion Zone or has not been observed for at least 15 minutes for pinnipeds and small cetaceans and 30 minutes for large whales shall the lead monitor allow work to recommence.

(v) PSOs shall monitor marine mammals around the construction site using high-quality binoculars (*e.g.*, Zeiss, 10 x 42 power) and/or spotting scopes.

(vi) If marine mammals are observed, the following information shall be documented:

- (A) Date and time that monitored activity begins or ends;
- (B) Construction activities occurring during each observation period;
- (C) Weather parameters (*e.g.*, percent cover, visibility);
- (D) Water conditions (*e.g.*, sea state, tide state);
- (E) Species, numbers, and, if possible, sex and age class of marine mammals;
- (F) Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
- (G) Distance from pile driving activities to marine mammals and distance

from the marine mammals to the observation point;

(H) Locations of all marine mammal observations; and

(I) Other human activity in the area.

(viii) Acoustic Monitoring - USCG shall conduct acoustic monitoring and background noise recordings (in the absence of pile-related work) following the NMFS's 2012 Guidance Documents: *Sound Propagation Modeling to Characterize Pile Driving Sounds Relevant to Marine Mammals and Data Collection Methods to Characterize Underwater Background Sound Relevant to Marine Mammals in Coastal Nearshore Waters and Rivers of Washington and Oregon*.

#### 7. Reporting:

##### (a) Marine Mammal Monitoring

(i) USCG shall submit a draft marine mammal monitoring report within 90 days after completion of the in-water construction work or the expiration of the IHA (if issued), whichever comes earlier. The report shall include data from marine mammal sightings as described: date, time, location, species, group size, and behavior, any observed reactions to construction, distance to operating pile hammer, and construction activities occurring at time of sighting and environmental data for the period (*i.e.*, wind speed and direction, sea state, tidal state, cloud cover, and visibility). The marine mammal monitoring report shall also include total takes, takes by day, and stop-work orders for each species.

(ii) If comments are received from NMFS Office of Protected Resources on the draft report, a final report shall be submitted to NMFS within 30 days thereafter. If no comments are received from NMFS, the draft report shall be considered to be the final report.

(iii) In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such as an injury (Level A harassment), serious injury, or mortality, USCG shall immediately cease the specified activities and immediately report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS and the NMFS' West Coast Stranding Coordinator. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hrs preceding the incident;
- Water depth;
- Environmental conditions (*e.g.*, wind speed and direction, sea state, cloud cover, and visibility);
- Description of all marine mammal observations in the 24 hrs preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities would not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with USCG to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. USCG shall not resume their activities until notified by NMFS via letter, email, or telephone.



(b) Reporting of Injured or Dead Marine Mammals

(i) In the event that USCG discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (*i.e.*, in less than a moderate state of decomposition as described in the next paragraph), USCG shall immediately report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS and the NMFS' West Coast Stranding Coordinator. The report must include the same information identified in 7(a)(iii). Activities may continue while NMFS reviews the circumstances of the incident. NMFS shall work with USCG to determine whether modifications in the activities are appropriate.

(ii) In the event that USCG discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in the IHA (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), USCG shall report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS and the NMFS Stranding Hotline and/or by email to the NMFS' West Coast Stranding Coordinator within 24 hrs of the discovery. USCG shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS. Activities may continue while NMFS reviews the circumstances of the incident.

(c) Acoustic Monitoring Report - USCG shall submit an Acoustic Monitoring Report that will provide details on the monitored piles, method of installation, monitoring equipment, and sound levels documented during monitoring. NMFS shall review the acoustic monitoring report and suggest any changes in monitoring as needed.

8. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein or if NMFS determines the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals.

9. A copy of this Authorization must be in the possession of each contractor who performs the construction work at the Monterey Station Project.

### **Request for Public Comments**

We request comment on our analyses, the draft authorization, and any other aspect of this Notice of Proposed IHA for the proposed pile driving activities for the USCG Monterey Station Project. Please include with your comments any supporting data or literature citations to help inform our final decision on the request for MMPA authorization.

Dated: September 6, 2017.

**Donna S. Wieting,**

*Director,*

*Office of Protected Resources,*

*National Marine Fisheries Service.*

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